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| 10/791,003 | 03/01/2004 | Zhi Zhiou | Zhou 10 | 1307 |

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| EXAMINER |
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DEGHAN, QUEENIE S

| ART UNIT | PAPER NUMBER |
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1731

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,003

Applicant(s)

ZHIOU, ZHI

Examiner

Queenie Dehghan

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cocchini et al. (6,327,876). Cocchini et al. disclose a method for drawing an optical fiber in figure 1, where the optical perform (106) has a longitudinal axis and is passed through the furnace (104), which heats the perform as it passes through and drawing an optical fiber from the heated perform (col. 5 lines 48-49, 55-56, 65-66). Furthermore, Cocchini et al disclose the rotating of the perform along its longitudinal axis relative to the heat source during the drawing process, at a rate of 600 rpm, which is a constant rate of rotation (col.2 lines 29-31). 600rpm is interpreted to be less than *approximately* 600rpm, where *approximately* can be 620rpm or 640rpm, for instance.

3. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Kato (JP Abstract 11130455). Kato teach of a rotating furnace while maintaining a preform rotationally stationary, in the drawing of an optical fiber in a heating furnace (abstract).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 4, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cocchini et al. (6,327,876), as applied to claim 1 above, in further view of Henderson et al. (6,240,748). Cocchini et al. fail to disclose rotating the preform at a variable rate of rotation. Henderson et al. disclose a process for making fiber from heating an optical fiber perform with a longitudinal axis in a heat source, while rotating the perform about its axis or spinning the fiber as it is drawn, and drawing a fiber from the perform (col. 4 lines 58-67). Henderson et al. also disclose rotating the preform or spinning the fiber at a constant rate (col. 5 lines 1-6) or at a variable rate (col. 9 lines 28-32). Furthermore, Henderson et al. disclose a process where a fiber has a PMD coefficient less than $0.2 \text{ picoseconds}/(\text{kilometer})^{1/2}$ (col. 3 lines 27-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the various steps for spinning and rotation of the preform and/or fiber of Henderson et al. in the method of Cocchini et al. in order to reduce the PMD in an optical fiber, as taught by Henderson et al.

6. Claims 5-7, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cocchini et al. (6,327,876), as applied to claim 1 above, and further in view of Fujimaki et al. (WO00/69782, see English translation US 6,789,399). Cocchini et al. fail to disclose rotating the preform in variable directions. Fujimaki et al. disclose a method for making an optical fiber by providing a optical fiber preform with a

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longitudinal axis that is heated in a stationary furnace (col. 2 line 67) and rotated in a first direction with respect to the heat source, from which a fiber is drawn (col. 3 lines 5-13). Additionally, Fujimaki et al. disclose the additional possibility of rotating the fiber preform about its longitudinal axis alternately clockwise and counterclockwise (col. 5 lines 63-67, Figure 1 and 2A). In Table 1, Fujimaki et al. provide an example where the fiber drawn from a rotated preform has a PMD coefficient less than 0.2

$\text{picoseconds}/(\text{kilometer})^{1/2}$. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the step of rotating the preform in desired directions as suggested by Fujimaki et al. in the method of Cocchini et al. in order to generate a twist in the fiber while in its noncircular state, as taught by Fujimaki et al.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cocchini et al. (6,327,876), as applied to claim 1 above, in view of Hart, Jr. et al. (5,418,881). Cocchini et al. disclose a process for drawing optical fibers from a rotating perform, but do not disclose a step of spinning the fiber as it is drawn. Hart, Jr. et al. disclose a step of spinning the fiber as it is being drawn (col. 4 lines 16-17, figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to spin the fiber as it is drawn, as disclosed by Hart, Jr. et al., in the process of Cocchini et al. for forming an optical fiber, in order to reduce PMD in the fiber, as taught by Hart, Jr. et al.

Response to Arguments

8. Applicant's arguments regarding Cocchini et al, filed May 11, 2006 have been fully considered but they are not persuasive. Cocchini et al. disclose in the prior art how it is known to rotate an optical fiber preform to impose a spin on the fiber and further disclose rotating at a rate of 600rpm. 600rpm is interpreted to be less than *approximately* 600rpm, where *approximately* can be 620rpm or 640rpm, for instance.
9. Applicant's arguments regarding Fujimaki et al. have been fully considered but they are not persuasive. Fujimaki et al. do suggest rotating an optical fiber preform, as previously mentioned in the rejection. Furthermore, the applicant's arguments with respect the rotating speed of less than approximately 600rpm in claim 1 under Fujimaki et al. have been considered but are moot in view of the new ground(s) of rejection.
10. Applicant's arguments with respect to claim 1 under Henderson et al. have been considered but are moot in view of the new ground(s) of rejection.
11. The applicant's cancellation of claims 2 and 12-21 has been acknowledged.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Onishi et al. (5,581,647) disclose the rotating of an optical fiber preform at speeds of less than approximately 600rpm (col. 2 lines 61-62).
13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Q Dehghan


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